

Claims

1. A printing workflow system disposed in a network environment for coordinating production of document processing jobs among a plurality of cells, wherein each cell is
5 comprised of one of a plurality of devices and resources for completing document processing jobs, said printing workflow system comprising:

10 a workflow mapping module that determines workflow for a selected one of said document processing jobs;

15 a job decomposition module for splitting selected document processing job into sub-jobs and for sending said sub-jobs to given ones of the cells for further processing; and

20 a product cell controller at a selected one of the given cells for receiving at least one sub-job and for further splitting said sub-job into lots for processing among devices in said selected cell;

- 25 2. The print workflow system of claim 1 further comprising a cell assignment module for assigning said sub-jobs to said given ones of the cells based on available capacity of each cell to process the selected document processing jobs.

- 30 3. The print workflow system of claim 1 further comprising a storage device for holding information regarding storing capacities and capabilities of said cells.

4. The print workflow system of claim 1 further comprising a storage device for storing information regarding workflow of each document processing job said workflow being comprised of a tree that outlines a sequence of operations needed to be performed to accomplish the selected document processing job.

5. The print workflow system of claim 1 wherein each of said document processing jobs are comprised of a plurality of job data structures that hold information identifying tasks needed to be completed in order to complete the document processing job.

6. The print workflow system of claim 1 wherein said product cell controller module assigns a number of “kanbans” to associate with said selected document processing job.

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7. The print workflow system of claim 6 wherein said product cell controller module adjusts the number of “kanbans” to further maximize utilization of the devices associated with said document processing job.

10 8. The print workflow system of claim 7 wherein said product cell controller module stores the number of “kanbans” used by a selected one of the devices.

9. A method used in a printing workflow system disposed in a network environment for coordinating production of document processing jobs among a plurality of cells, wherein each cell is comprised of one of a plurality of devices for completing document processing jobs, said printing workflow system comprising:

determining workflow for a selected one of said document processing jobs;

splitting selected document processing job into sub-jobs and sending said sub-jobs to given ones of the cells for further processing; and

receiving at a selected one of the given cells at least one sub-job and further splitting said sub-job into lots for processing among devices and resources in said selected cell.

10. The method recited in claim 9 further comprising assigning said sub-jobs to said given ones of the cells based on available capacity of each cell to process the selected document processing jobs.

11. The method recited in claim 10 further comprising holding information regarding storing capacities and capabilities of said cells.

12. The method recited in claim 10 further comprising storing information regarding workflow of each document processing job, said workflow being comprised of a tree that outlines a sequence of operations needed to be performed to complete the selected document processing job.

13. The method recited in claim 10 wherein each of said document processing jobs are comprised of a plurality of job data structures that hold information identifying tasks needed to be completed in order to complete the document processing job.

14. The method recited in claim 11 wherein said receiving step assigns a number of "kanbans" to associate with said selected document processing job.

15. The method recited in claim 14 wherein said receiving step adjusts the number of "kanbans" to further maximize utilization of the devices associated with said document processing job.

16. The method recited in claim 15 wherein said receiving step stores the number of "kanbans" used per said selected devices.

17. A method for assigning sub-jobs to available cells in a printing workflow system for coordinating document processing jobs, wherein each of the available cells is comprised of at least one device for a printing a product-type, the method comprising:

identifying maximum capacity of each of the available cells to print the product-type;

identifying current loading of each of the available cells to print product-type;



determining based on the maximum capacity and current loading of each of the available cells a current capacity of each of the available cells to print the product-type; and

5 assigning at least one of the available cells for printing the product-type based on the current capacity of each of the available cells.

18. The method of claim 17 wherein the print workflow system stores the maximum capacities of each of the available cells in the print workflow system.

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19. The method of claim 17 further comprising a pull-type control policy for determining whether a cell can be assigned new document processing jobs.

20. The method of claim 17 wherein the print workflow system updates the current loading of each available cells.

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21. The method of claim 17 wherein the print workflow system updates the maximum capacity.

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